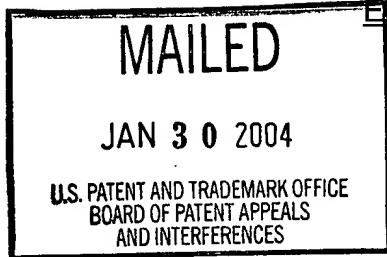


The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

Paper No. 13

UNITED STATES PATENT AND TRADEMARK OFFICE

**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**



Ex parte DAVID CARL and NATHAN GERSHON

Appeal No. 2004-0323
Application No. 09/716,045

ON BRIEF

Before COHEN, NASE, and BAHR, Administrative Patent Judges.

NASE, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal from the examiner's non-final rejection (Paper No. 5, mailed September 16, 2002) of claims 1 to 4 and 6 to 13, which are all of the claims pending in this application.

We AFFIRM-IN-PART.

BACKGROUND

The appellants' invention relates, in a general sense, to a device for creating a vertically disposed air current capable of suspending one or more humans within the current, but, more importantly, a multi-faceted system for both the training and entertainment of members of the public who wish to experience the exhilaration of free fall flight in any one of several selected simulated environments, including, but not limited to, the capacity to play games in a state of free flight suspended animation (specification, p. 1). A copy of the claims under appeal is set forth in the appendix to the appellants' brief.

The prior art references of record relied upon by the examiner in rejecting the appealed claims are:

Methfessel et al. (Methfessel)	5,593,352	Jan. 14, 1997
Kitchen et al. (Kitchen)	5,655,909	Aug. 12, 1997
Lenhart	6,042,490	Mar. 28, 2000
Larsen et al. (Larsen)	6,378,361	Apr. 30, 2002
Louttit	GB 2 062 557 A	May 28, 1981

Claims 1 to 4 and 6 to 13 stand rejected under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Claims 3 and 8 stand rejected under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the appellants, at the time the application was filed, had possession of the claimed invention.

Claims 2, 4, 7, 10, 12 and 13 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the appellants regard as the invention.¹

Claims 1, 2 and 4 stand rejected under 35 U.S.C. § 103 as being unpatentable over Kitchen in view of Larsen.²

Claim 3 stands rejected under 35 U.S.C. § 103 as being unpatentable over Kitchen in view of Larsen and Methfessel.

¹ While the examiner failed to include claim 13 in the statement of the rejection (see page 3 of the second Office action), the examiner did include claim 13 in the body of the rejection (see page 4 of the second Office action).

² While the examiner rejected dependent claim 4 in a separate rejection under 35 U.S.C. § 103 based on Kitchen (see page 7 of the second Office action), we believe it is apparent that the examiner intended to rely on both Kitchen and Larsen as applied to parent claim 1.

Claims 1 to 3, 6, 10, 11 and 13 stand rejected under 35 U.S.C. § 103 as being unpatentable over Methfessel in view of Larsen.

Claims 1 and 7 stand rejected under 35 U.S.C. § 103 as being unpatentable over Methfessel and Larsen in view of Louttit.

Claims 8, 9 and 12 stand rejected under 35 U.S.C. § 103 as being unpatentable over Methfessel in view of Larsen and Lenhart.

Rather than reiterate the conflicting viewpoints advanced by the examiner and the appellants regarding the above-noted rejections, we make reference to the second Office action (Paper No. 5, mailed September 16, 2002) and the answer (Paper No. 9, mailed May 30, 2003) for the examiner's complete reasoning in support of the rejections, and to the brief (Paper No. 8, filed May 14, 2003) and reply brief (Paper No. 10, filed August 4, 2003) for the appellants' arguments thereagainst.

OPINION

In reaching our decision in this appeal, we have given careful consideration to the appellants' specification and claims, to the applied prior art references, and to the

respective positions articulated by the appellants and the examiner. As a consequence of our review, we make the determinations which follow.

The enablement rejection

We will not sustain the rejection of claims 1 to 4 and 6 to 13 under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

An analysis of whether the claims under appeal are supported by an enabling disclosure requires a determination of whether that disclosure contained sufficient information regarding the subject matter of the appealed claims as to enable one skilled in the pertinent art to make and use the claimed invention. The test for enablement is whether one skilled in the art could make and use the claimed invention from the disclosure coupled with information known in the art without undue experimentation.

See United States v. Telecommunications, Inc., 857 F.2d 778, 785, 8 USPQ2d 1217, 1223 (Fed. Cir. 1988), cert. denied, 109 S.Ct. 1954 (1989); In re Stephens, 529 F.2d 1343, 1345, 188 USPQ 659, 661 (CCPA 1976).

In order to make a nonenablement rejection, the examiner has the initial burden to establish a reasonable basis why one skilled in the art could not make and use the claimed invention from the disclosure coupled with information known in the art without undue experimentation. See In re Wright, 999 F.2d 1557, 1561-62, 27 USPQ2d 1510, 1513 (Fed. Cir. 1993). Once the examiner has established a reasonable basis to question that one skilled in the art could not make and use the claimed invention from the disclosure coupled with information known in the art without undue experimentation, the burden falls on the appellants to present persuasive arguments, supported by suitable proofs where necessary, that one skilled in the art would be able to make and use the claimed invention without undue experimentation using the disclosure as a guide. See In re Brandstadter, 484 F.2d 1395, 1406, 179 USPQ 286, 294 (CCPA 1973).

Thus, the dispositive issue is whether the appellants' disclosure, considering the level of ordinary skill in the art as of the date of the appellants' application, would have enabled a person of such skill to make and use the appellants' invention without undue experimentation. The threshold step in resolving this issue as set forth *supra* is to determine whether the examiner has met his burden of proof by advancing acceptable reasoning inconsistent with enablement. This the examiner has not done. In fact, the examiner has not made any showing as to why one skilled in the art could not make

and use the claimed invention from the disclosure coupled with information known in the art without undue experimentation.³ Without a showing as to why one skilled in the art could not make and use the claimed invention without undue experimentation, the examiner has not met the required initial burden to establish a *prima facie* case of a lack of enablement.

For the reasons set forth above, the decision of the examiner to reject claims 1 to 4 and 6 to 13 based on the enablement requirement of 35 U.S.C. § 112, first paragraph, is reversed.

The written description rejection

We sustain the rejection of claims 3 and 8 under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the appellants, at the time the application was filed, had possession of the claimed invention.

³ Factors that an examiner should consider in determining whether a disclosure would require undue experimentation include (1) the quantity of experimentation necessary, (2) the amount of direction or guidance presented, (3) the presence or absence of working examples, (4) the nature of the invention, (5) the state of the prior art, (6) the relative skill of those in the art, (7) the predictability or unpredictability of the art, and (8) the breadth of the claims. See In re Wands, 858 F.2d 731, 737, 8 USPQ2d 1400, 1404 (Fed. Cir. 1988) citing Ex parte Forman, 230 USPQ 546, 547 (Bd. Pat. App. & Int. 1986).

The test for determining compliance with the written description requirement is whether the disclosure of the application as originally filed reasonably conveys to the artisan that the inventor had possession at that time of the later claimed subject matter, rather than the presence or absence of literal support in the specification for the claim language. See Vas-Cath, Inc. v. Mahurkar, 935 F.2d 1555, 1563-64, 19 USPQ2d 1111, 1116-17 (Fed. Cir. 1991) and In re Kaslow, 707 F.2d 1366, 1375, 217 USPQ 1089, 1096 (Fed. Cir. 1983).

In this rejection (second Office action, pp. 2-3), the examiner determined that there was no written description support for (1) the camera provided within the chamber being "recessed out of said column of air" as recited in claim 3; and (2) all existing goals being "recessed within the said wall defining said chamber" as recited in claim 8.

The appellants argue (brief, p. 7) that claims 3 and 8 provide the necessary written description support and that reference to the goals being recessed is found on page 9, beginning on line 13.

The disclosure of the application as originally filed does not reasonably convey to the artisan that the inventors had possession at that time of the subject matter now set forth in amended claims 3 and 8. Specifically, the application as originally filed does

not provide written description support for either the camera being "recessed out of said column of air" as recited in claim 3 or all existing goals being "recessed within the said wall defining said chamber" as recited in claim 8.

The appellants' argument with respect to this ground of rejection is unpersuasive for the following reasons. First, amended claims 3 and 8 cannot by themselves provide the necessary written description support for matter that was added to original claims 3 and 8. Second, as set forth above, there is no written description support in the application as originally filed for either the camera being "recessed out of said column of air" as recited in claim 3 or all existing goals being "recessed within the said wall defining said chamber" as recited in claim 8. Lastly, the specification at page 9, beginning on line 13, provides no support whatsoever for all existing goals being "recessed within the said wall defining said chamber" as recited in claim 8.

For the reasons set forth above, the decision of the examiner to reject claims 3 and 8 based on the written description requirement of 35 U.S.C. § 112, first paragraph, is affirmed.

The indefiniteness rejection

We sustain the rejection of claims 2, 7, 10 and 12 under 35 U.S.C. § 112, second paragraph, but not the rejection of claims 4 and 13.

The second paragraph of 35 U.S.C. § 112 requires claims to set out and circumscribe a particular area with a reasonable degree of precision and particularity. In re Johnson, 558 F.2d 1008, 1015, 194 USPQ 187, 193 (CCPA 1977). In making this determination, the definiteness of the language employed in the claims must be analyzed, not in a vacuum, but always in light of the teachings of the prior art and of the particular application disclosure as it would be interpreted by one possessing the ordinary level of skill in the pertinent art. Id.

The examiner's focus during examination of claims for compliance with the requirement for definiteness of 35 U.S.C. § 112, second paragraph, is whether the claims meet the threshold requirements of clarity and precision, not whether more suitable language or modes of expression are available. Some latitude in the manner of expression and the aptness of terms is permitted even though the claim language is not as precise as the examiner might desire. If the scope of the invention sought to be patented cannot be determined from the language of the claims with a reasonable

degree of certainty, a rejection of the claims under 35 U.S.C. § 112, second paragraph, is appropriate.

Furthermore, appellants may use functional language, alternative expressions, negative limitations, or any style of expression or format of claim which makes clear the boundaries of the subject matter for which protection is sought. As noted by the Court in In re Swinehart, 439 F.2d 210, 213-14, 169 USPQ 226, 228-29 (CCPA 1971), a claim may not be rejected solely because of the type of language used to define the subject matter for which patent protection is sought.

With this as background, we analyze the specific reasons (second Office action, pp. 4-5) set forth by the examiner in the rejection under 35 U.S.C. § 112, second paragraph:

Regarding claim 2, the features encompassed by "...diameter of said column of air is variable within said chamber" can't be determined.

Regarding claim 4, the structural features encompassed by the phrase "optionally provided" can't be determined.

Regarding claims 7 and 12, the phrase "certain ones of the fans being turned off so that the only ones of said fans being operated are within the then current diameter of said chamber" renders the claim indefinite. It is unclear as why some of the fans would be turned off since the claim is dependent from claim 1 which claims only one chamber with one diameter, therefore it would stand to reason that all the fans remain on.

Regarding claim 10, there is no antecedent basis for "said inner wall".

Regarding claim 13, the structural features encompassed by the phrase "curtain wall" [sic, "] can't be determined. It is unclear as to what features define a curtain wall.

With regard to claim 4, we agree with the appellants that the phrase "optionally provided" does not render the claim indefinite. In Ex parte Cordova, 10 USPQ2d 1949, 1950 (Bd. Pat. App. & Inter. 1989) the language "containing A, B, and optionally C" was considered acceptable alternative language because there was no ambiguity as to which alternatives are covered by the claim. A similar holding was reached with regard to the term "optionally" in Ex parte Wu, 10 USPQ2d 2031, 2032 (Bd. Pat. App. & Inter. 1989). See also Ex parte Holt, 19 USPQ2d 1211, 1214 (Bd. Pat. App. & Int. 1991).

With regard to claim 13, the phrase "curtain wall" is definite since the metes and bounds thereof would be understood by one skilled in the art by applying the ordinary and customary meaning of those words.

We agree with the examiner that the features encompassed by "...diameter of said column of air is variable within said chamber" as recited in claim 2 can't be determined thus making that claim indefinite. The appellants' argument that this function is accomplished by the secondary wall 21 is not persuasive since (1) parent claim 1 provides that the surface of the primary wall, not a secondary wall that is adjustable, defines the diameter of the column of air; and (2) the diameter of the primary wall is not variable.

Regarding claims 7 and 12, we agree with the examiner that the phrase "certain ones of the fans being turned off so that the only ones of said fans being operated are within the then current diameter of said chamber" renders the claim indefinite. The appellants' argument that this function is set forth on pages 7-8 of the specification is not persuasive since pages 7-8 of the specification provide that certain ones of the fans 18 can be turned off when secondary wall 21 is utilized within the primary wall 12 but such is not claimed. In that regard, parent claim 1 provides that the surface of the primary wall, not a secondary wall, defines the diameter of the column of air and therefor none of the fans would be turned off as set forth in the disclosure.

We agree with the examiner that there is no antecedent basis for "said inner wall" in claim 10 thus making that claim indefinite. The appellants' argument that claim 10 is dependent on claim 4, which is in turn dependent on claim 1, which references an "inner wall" is not persuasive since (1) claim 10 is dependent from claim 6, which is in turn dependent on claim 2, which is in turn dependent on claim 1; and (2) claims 1, 2 and 6 do not provide any antecedent support for "said inner wall."

For the reasons set forth above, the decision of the examiner to reject claims 2, 4, 7, 10, 12 and 13 under 35 U.S.C. § 112, second paragraph, is affirmed with respect to claims 2, 7, 10 and 12 and reversed with respect to claims 4 and 13.

The obviousness rejection based on Kitchen and Larsen

We sustain the rejection of claims 1, 2 and 4 under 35 U.S.C. § 103 as being unpatentable over Kitchen in view of Larsen.

Claims 1 and 4 read as follows:

1. In a free fall simulator wherein a cylindrical primary wall is provided, said primary wall defining a chamber, means for generating a column of air under pressure in said chamber, said column of air moving from bottom to top, the pressure being sufficient to support one or more flyers therein, said primary wall having a surface, said surface being contiguous with and defining the diameter of said column, the surface of said primary wall being smooth such that said column of air moves in laminar flow in at least an upstream portion of said column of air.
4. The free fall simulator of Claim 1 wherein a secondary wall is optionally provided, said secondary wall having an inner surface, said inner surface being of a pastel color so as to provide a background for use of blue screen technology.

Kitchen discloses a skydiving simulator which combines a vertical air column chamber with a video projection system on the interior wall. Kitchen's vertical air column chamber utilizes a closed cylinder having a fan system supporting a vertical column of air at about 120 mph. A virtual reality environment is created as the skydiver, while suspended, sees actual film footage of scenarios descending toward earth. A skydiver backpack houses a transmitter which interactively steps the skydiver through emergency procedures.

Larsen's invention relates to an apparatus for redirecting air flow, and more particularly, to an apparatus for efficiently redirecting a horizontal, planar, radially inward directed air flow ninety degrees to a vertically directed air flow having a generally uniform velocity profile. Additionally, Larsen's invention provides an apparatus for directing a three-dimensional inward directed air flow to a planar radially inward directed flow as well as an apparatus for directing an air flow having a generally uniform velocity profile to the inlet of a ducted fan. In the BACKGROUND OF THE INVENTION section of the patent (column 1, line 16, to column 2, line 27) Larsen teaches that:

Wind tunnels can generally be open circuit designs, wherein the air is drawn from and discharged to the ambient atmosphere, or closed circuit designs, wherein the air is recycled. In the case of an open circuit design, in order to create a vertically discharged air stream, prior art wind tunnels have used a vertically oriented fan to directly accelerate air which is exhausted to an upper exit section. Wind tunnels such as these have been used for recreation, such as re-creating a free-fall environment for training sky divers, or for scientific and research purposes. When such a tunnel is used for recreational or training purposes, a user is placed directly into the accelerated air flow, which acts upon the user's body with sufficient force so as to suspend the user's body at a certain elevation. The user is thus maintained in the elevated position until the user is removed from the flow of air, or the air flow is reduced or terminated. When used for research purposes, an object to be studied is placed in the air stream so that measurements can be taken. Commonly, smoke tracers are also used so that the air flow around the object can be observed. In either usage, a relatively uniform velocity profile is highly desirable.

However, existing vertical wind tunnels as described above have several drawbacks for these usages. For example, in recreational circumstances, the user is either elevated directly over or directly beneath the fan or blower motor and is therefore subjected to noise levels loud enough that ear plugs may be required to reduce the sound to a tolerable level. Furthermore, the air flow emanating from the fan is generally quite **turbulent** and has an uneven velocity profile, which leads to rough conditions for the user and unpredictable variables

for the researcher. These problems are increased by the fact that most vertical wind tunnels of this type utilize a standard aircraft propeller to accelerate the air which further contributes to the heightened noise levels and the uneven velocity profiles.

Additionally, the positioning of the fan motor in a vertically upright orientation presents its own set of engineering obstacles. First, in order to create the desired **laminar** flow, the length of the entire assembly from the fan drive motor to the upper exit section can be quite long. Therefore, in order to house the necessary equipment and place the upper exit section of the wind tunnel at an easily accessible location, either significant excavation or construction of an elevation structure must be completed which can greatly increase the expense and complexity of the wind tunnel construction. Furthermore, additional ductwork has to be built to provide inlet air for the fan, further adding to construction expense. Even more significantly, though, is the fact that the vertical orientation of the fan motor places more stress on the motor bearings than a horizontal orientation would, thereby increasing maintenance expense and reducing the life span of the motor.

In order to overcome these problems, wind tunnels have been built to create vertical air flows using generally horizontally oriented fans. For example, prior art wind tunnels have been made for creating a vertical air flow using horizontal fans whereby the horizontal fan accelerates air through a run of horizontal ductwork after which the air is turned to a vertical direction using a vertically angled baffle. However, prior art apparatuses using this method have encountered problems. For instance, the velocity profile of the air flow leaving the tunnel is not as uniform or consistent as is generally required or desired. Furthermore, the baffles used for redirecting the flow is very inefficient, resulting in unacceptable energy losses, and therefore lower than desired air flow velocities.

Accordingly, there is a need for an apparatus for creating a vertical flow of air which provides relatively uniform flow velocities, which is relatively quiet in operation, which is of simple design and construction, and which can be assembled and maintained at a low cost. Accordingly, there also exists a need for an apparatus which can efficiently redirect air flow from a generally horizontal direction to a generally vertical direction. There also exists a need for an apparatus which can redirect a three-dimensional, inward directed air flow to a generally planar radially-inward directed flow. Furthermore, there exists a need

for an apparatus that can redirect air flow in the above-noted manners in an efficient manner while maintaining relatively high energy ratios. [Emphasis ours]

Larsen further teaches (column 3, lines 34-45) that:

The present invention further provides a wind tunnel having a horizontal lead-in with an exit which is normal to the lead-in. This arrangement allows the motor and fan to be remotely placed from the user, and provides a much quieter environment than is provided in prior art vertical configurations. Furthermore, the horizontal section also allows for greater control over the air flow. Thus a generally even, uniform flow may be generated. Also, the horizontal lead-in section of the present invention avoids the problems associated with the extensive excavation required for the entirely vertically oriented tunnels of the prior art.

After the scope and content of the prior art are determined, the differences between the prior art and the claims at issue are to be ascertained. Graham v. John Deere Co., 383 U.S. 1, 17-18, 148 USPQ 459, 467 (1966).

Based on our analysis and review of Kitchen and claims 1 and 4, it is our opinion that the only difference is the limitation that "said column of air moves in laminar flow in at least an upstream portion of said column of air."

With regard to this difference, in applying the test for obviousness,⁴ we reach the conclusion that it would have been obvious at the time the invention was made to a person of ordinary skill in the art to provide Kitchen's column of air to the bottom of the vertical chamber via Larsen's apparatus for creating a vertically directed air flow having a generally even, uniform flow (i.e., nonturbulent flow, laminar flow). The motivation for this change is Larsen's teaching to avoid turbulent air flow and create the desired laminar flow by an arrangement allowing the motor and fan to be remotely placed from the user thereby also providing a much quieter environment than is provided in prior art vertical configurations. Furthermore, Larsen's apparatus also allows for greater control over the air flow permitting a generally even, uniform flow to be generated. Lastly, the horizontal lead-in section of Larsen avoids the problems associated with the extensive excavation required for the entirely vertically oriented tunnels of the prior art.

The appellants' arguments (brief, pp. 9-10; reply brief, pp. 2-3) regarding claims 1 and 4 are not persuasive for the reasons that follow. First, the applied prior art, not the use of impermissible hindsight⁵, is suggestive of the claimed subject matter as set forth

⁴ The test for obviousness is what the combined teachings of the references would have suggested to one of ordinary skill in the art. See In re Young, 927 F.2d 588, 591, 18 USPQ2d 1089, 1091 (Fed. Cir. 1991) and In re Keller, 642 F.2d 413, 425, 208 USPQ 871, 881 (CCPA 1981).

⁵ The use of hindsight knowledge derived from the appellants' own disclosure to support an obviousness rejection under 35 U.S.C. § 103 is impermissible. See, for example, W. L. Gore and Assocs., Inc. v. Garlock, Inc., 721 F.2d 1540, 1553, 220 USPQ 303, 312-13 (Fed. Cir. 1983), cert. denied, 469 U.S. 851 (1984).

(continued...)

above. Second, the screens 23 on the inside wall 22 of Kitchen's vertical chamber 4 do not impact on the smoothness of the inside wall. While the screens 23 would affect any laminar air flow proceeding upwardly along inside wall 22, claim 1 only requires that the surface of the primary wall be smooth such that the column of air moves in laminar flow in at least an upstream portion of the column of air. These limitations are met by the combined teachings of Kitchen and Larsen since the inside wall 22 of Kitchen's vertical chamber 4 is smooth and the column of air suggested and taught by Larsen's apparatus applied to Kitchen's vertical chamber 4 would move in laminar flow in at least an upstream portion of the column of air (i.e., the portion of the column of air upstream of the screens 23 and the skydiver 21). Lastly, since the secondary wall is only "optionally provided" in claim 4, the limitations thereof are met by the applied prior art.

For the reasons set forth above, the decision of the examiner to reject claims 1 and 4 under 35 U.S.C. § 103 as being unpatentable over Kitchen in view of Larsen is affirmed.

The appellants have grouped claims 1 and 2 as standing or falling together.⁶ Thereby, in accordance with 37 CFR § 1.192(c)(7), claim 2 falls with claim 1. Thus, it

⁵(...continued)

⁶ See page 5 of the appellants' brief.

follows that the decision of the examiner to reject claim 2 under 35 U.S.C. § 103 as being unpatentable over Kitchen in view of Larsen is also affirmed.

The obviousness rejection based on Kitchen, Larsen and Methfessel

We will not sustain the rejection of claim 3 under 35 U.S.C. § 103 as being unpatentable over Kitchen in view of Larsen and Methfessel.

Claim 3 reads as follows:

The free fall simulator of Claim 1 wherein a camera is provided within said chamber, said camera being remotely positionable and recessed out of said column of air to photograph said flyers against the background provided by the walls of said chamber.

Methfessel's invention relates to skydiving simulators, and more particularly to a skydiving simulator apparatus that is designed and constructed to be mobile and portable, and that is designed to operate from substantially ground level employing a readily assembled air containment unit. Methfessel teaches (column 10, lines 9-13) that "[t]he use of a transparent air containment unit will also allow the apparatus to be equipped with an externally mounted camera or a plurality of cameras for taking photographs or videos of the activities taking place in the air containment unit."

While the applied prior art is suggestive of a camera mounted externally of the chamber, the applied prior art does not teach or suggest a camera within the chamber as set forth in claim 3. Accordingly, the decision of the examiner to reject claim 3 under 35 U.S.C. § 103 as being unpatentable over Kitchen in view of Larsen and Methfessel is reversed.

The obviousness rejection based on Methfessel and Larsen

We sustain the rejection of claims 1 to 3, 6, 10, 11 and 13 under 35 U.S.C. § 103 as being unpatentable over Methfessel in view of Larsen.

As shown in Figures 1-3, Methfessel teaches a skydiving simulator 10 mounted on a flatbed trailer 12. An enclosure 20 is secured to the horizontal surface 14 of the flatbed trailer. The enclosure 20 serves several purposes, a first of which is to provide an elevated deck 24 above which the air containment unit 100 is to be disposed. The enclosure 20 also preferably has a vertical cylindrical fan housing 26 constructed therein to channel air flow produced by a fan 28 upwardly through the air containment unit 100. Methfessel teaches (column 5, lines 15-27) that:

It should also be readily understood that it would be possible to alternatively employ a fan that is not disposed directly below unit 100, such as a vertically oriented fan, used in conjunction with appropriate ducting, to channel the airflow upwardly into the air containment unit 100. In addition, it would be possible to employ a horizontally oriented fan not placed directly under the air containment unit, and there may be circumstances for which an offset fan

placement of this type would be appropriate. In such a configuration, it will be readily apparent that suitable ducting, and possibly directional louvers, may be provided to direct the air stream driven by the fan into the air containment unit.

Due to the size of the air containment unit necessary to provide a user or a plurality of users with sufficient space to move around during a simulated free fall, Methfessel asserts (column 7, lines 45-65) that it would not be practicable to provide, on a mobile, transportable skydiving simulator apparatus, a permanent vertical duct. Instead, the air containment unit 100 will be collapsible. The preferred embodiment of Figure 1 depicts the air containment unit 100 as being an inflatable, annular containment tube 104 that, when inflated, defines an inner chamber 106 into which the upwardly flowing air from the fan will be channeled such that a person or persons within the inner chamber will be subjected to an airflow of a velocity approximating, and alternatively slightly exceeding and slightly less than, the terminal free fall velocity of that person or those persons. An alternative air containment unit 400 is depicted in Figure 4. The air containment unit 400 is not a pliant, inflatable polymer tube 104, but is instead constructed of a plurality of rigid telescoping plastic panels 402 that are designed to be quickly assembled into an air containment tube 404 at successive locations, and later disassembled for transport.

Based on our analysis and review of Methfessel and claim 1, it is our opinion that the only difference is the limitation that "said column of air moves in laminar flow in at least an upstream portion of said column of air."

With regard to this difference, in applying the test for obviousness, we reach the conclusion that it would have been obvious at the time the invention was made to a person of ordinary skill in the art to provide Methfessel's column of air to the bottom of the vertical chamber via Larsen's apparatus for creating a vertically directed air flow having a generally even, uniform flow (i.e., nonturbulent flow, laminar flow). The motivation for this change is Larsen's teaching to avoid turbulent air flow and create the desired laminar flow by an arrangement allowing the motor and fan to be remotely placed from the user thereby also providing a much quieter environment than is provided in prior art vertical configurations. Furthermore, Larsen's apparatus also allows for greater control over the air flow permitting a generally even, uniform flow to be generated. Lastly, the horizontal lead-in section of Larsen avoids the problems associated with the extensive excavation required for the entirely vertically oriented tunnels of the prior art.

The appellants' arguments (brief, pp. 10-11; reply brief, pp. 2-3) regarding claim 1 are not persuasive since the applied prior art, not the use of impermissible hindsight, is suggestive of the claimed subject matter for the rationale set forth above in our affirmance of the rejection of claim 1 under 35 U.S.C. § 103 as being unpatentable over Kitchen in view of Larsen. Accordingly, the decision of the examiner to reject claim 1 under 35 U.S.C. § 103 as being unpatentable over Methfessel in view of Larsen is affirmed.

The appellants have grouped claims 1 to 3, 6, 10, 11 and 13 as standing or falling together.⁷ Thereby, in accordance with 37 CFR § 1.192(c)(7), claims 2, 3, 6, 10, 11 and 13 fall with claim 1. Thus, it follows that the decision of the examiner to reject claims 2, 3, 6, 10, 11 and 13 under 35 U.S.C. § 103 as being unpatentable over Methfessel in view of Larsen is also affirmed.

The obviousness rejection based on Methfessel, Larsen and Louttit

We will not sustain the rejection of claims 1 and 7 under 35 U.S.C. § 103 as being unpatentable over Methfessel and Larsen in view of Louttit.

Louttit discloses an apparatus for simulating free-fall conditions. The apparatus comprises an upstanding wall structure enclosing an interior space having a port for human access. A stream of air is directed upwardly by a number of large fans through the space at a velocity such that the air stream can support a human body in a floating condition within the space away from the walls. The upwardly diverging walls result in a velocity gradient and the roof is shaped to direct the air to apertures between the roof and the side walls for return through ducts to the fans. The fans have their own protective housings and a rigid mesh floor is provided across the lower part of the enclosed space to prevent falls into the fan chambers.

⁷ See page 5 of the appellants' brief.

In this rejection (final rejection, pp. 7-8), the examiner (1) ascertained that Methfessel fails to teach the air generating means being a series of contiguous fans as required by claim 7 and (2) concluded that it would have been obvious to one having ordinary skill in the art, at the time the invention was made, in view of Louttit, to manufacture the device of Methfessel as modified by Larsen as set forth above with a series of controllable contiguous fans.

In our view, while the teachings of Louttit may have made it obvious at the time the invention was made to a person of ordinary skill in the art to generate the air flow in the device of Methfessel as modified by Larsen by means of a series of controllable contiguous fans, such would not arrive at the subject matter of claim 7. In that regard, none of the applied prior art is suggestive of "certain ones of said fans being turned off so that the only ones of said fans being operated are within the then current diameter of said chamber" as set forth in claim 7. Accordingly, the decision of the examiner to reject claim 7 under 35 U.S.C. § 103 as being unpatentable over Methfessel and Larsen in view of Louttit is reversed.

With respect to claim 1, we have already affirmed the decision of the examiner to reject claim 1 under 35 U.S.C. § 103 as being unpatentable over Methfessel in view of Larsen and see no need to affirm this rejection which additionally applies Louttit.

Therefore, the decision of the examiner to reject claim 1 under 35 U.S.C. § 103 as being unpatentable over Methfessel and Larsen in view of Louttit is reversed.

The obviousness rejection based on Methfessel, Larsen and Lenhart

We will not sustain the rejection of claims 8, 9 and 12 under 35 U.S.C. § 103 as being unpatentable over Methfessel in view of Larsen and Lenhart.

Lenhart discloses a system and method for playing a game in three dimensions. The system includes a three-dimensional playing field at least partially surrounded by a volume-defining surface, and an air mover operatively connected to the playing field to produce a stream of air within the playing field. A goal may be formed within the playing field so that an object may be moved relative to the goal. An air control system may control the stream of air within the playing field, so that the stream of air within the playing field has a volume flow rate that may be varied substantially by the air control system within at least one selected area of the playing field. As shown in Figures 1-3, a goal 36 is formed within playing field 12 as a separate opening in wall 24. A goal surround 38 and a landing pad 40 are formed as part of goal 36. By way of example, Lenhart envisions a game involving twelve players 22, divided into two teams of six players. Each team would be assigned one goal 36 as a target with another such

goal 36 assigned to that team to be protected from access by the opposing team. The object of the game is for one of players 22 of a particular team to carry ball 18 through that team's designated target goal 36.

In our view, while the teachings of Lenhart may have made it obvious at the time the invention was made to a person of ordinary skill in the art to have modified the device of Methfessel as modified by Larsen to play Lenhart's game, such would not arrive at the subject matter of claims 8 and 9. None of the applied prior art is suggestive of the subject matter of claim 8 (i.e., "at least one goal is provided within said chamber for use in playing games, all existing goals being recessed within the said wall defining said chamber." In that regard, Lenhart's goal 36 is not **within** the chamber for use in playing games and Lenhart's goals 36 are not **recessed within** the wall defining the chamber. Accordingly, the decision of the examiner to reject claim 8, and claim 12 dependent thereon, under 35 U.S.C. § 103 as being unpatentable over Methfessel and Larsen in view of Lenhart is reversed. Furthermore, none of the applied prior art is suggestive of the subject matter of claim 9 (i.e., "pairs of opposed goals are provided within said chamber for use in playing games, said goals being accessible through apertures within the said wall defining said chamber." In that regard, Lenhart's goals 36 are not **within** the chamber for use in playing games and Lenhart's goals 36 are not **accessible through apertures within** the wall defining the chamber.

Accordingly, the decision of the examiner to reject claim 9 under 35 U.S.C. § 103 as being unpatentable over Methfessel and Larsen in view of Lenhart is reversed.

CONCLUSION

To summarize, the decision of the examiner to reject claims 1 to 4 and 6 to 13 under 35 U.S.C. § 112, first paragraph, is reversed; the decision of the examiner to reject claims 3 and 8 under 35 U.S.C. § 112, first paragraph, is affirmed; the decision of the examiner to reject claims 2, 4, 7, 10, 12 and 13 under 35 U.S.C. § 112, second paragraph, is affirmed with respect to claims 2, 7, 10 and 12 and reversed with respect to claims 4 and 13; the decision of the examiner to reject claims 1, 2 and 4 under 35 U.S.C. § 103 as being unpatentable over Kitchen in view of Larsen is affirmed; the decision of the examiner to reject claim 3 under 35 U.S.C. § 103 as being unpatentable over Kitchen in view of Larsen and Methfessel is reversed; the decision of the examiner to reject claims 1 to 3, 6, 10, 11 and 13 under 35 U.S.C. § 103 as being unpatentable over Methfessel in view of Larsen is affirmed; the decision of the examiner to reject claims 1 and 7 under 35 U.S.C. § 103 as being unpatentable over Methfessel and Larsen in view of Louttit is reversed; and the decision of the examiner to reject claims 8, 9 and 12 under 35 U.S.C. § 103 as being unpatentable over Methfessel in view of Larsen and Lenhart is reversed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a).

AFFIRMED-IN-PART



IRWIN CHARLES COHEN
Administrative Patent Judge

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